

*For Examiner's Reference

Claims

1. An intake system for the combustion air of a motor of a hand held implement, comprising:

5 an air filter (3) having a dirt chamber (5) and a clean chamber (6) that is separated from the dirt chamber by a filter medium (27), wherein said clean chamber (6) is fluidically connected with a carburetor (7) of said motor;

10 a centrifugal separator (4) that splits an incoming air stream into core flows (9) having a low particle density, and peripheral flows (10) having a high particle density, wherein one of said flows is conveyed to said dirt chamber (5) of said air filter (3), and the other of said flows is discharged, wherein said centrifugal separator (4) includes at least two cyclones (11), and wherein discharge flows from said cyclones are respectively combined in pairs; and

15 a common suction tube (21), wherein said paired discharge flows open out into said suction tube.

2. An intake system according to claim 1, which includes a dirt collector (16) in which is formed a dirt collection chamber (17) into which said discharge flows open out.

20 3. An intake system according to claim 2, wherein passages 59-64 are formed in said dirt collection chamber (17) and in which said discharge flows are combined, and wherein at least one partition (65, 66) is disposed between two of said passages.

25 4. An intake system according to claim 3, wherein said cyclones 11 are provided with discharge spirals (42), wherein one of said discharge flows is withdrawn from one of said cyclones via a pertaining one of said discharge spirals, and wherein a cross section and length of said passages 59-64 are such

that approximately the same underpressure exists in said discharge spirals (42) of all of said cyclones (11).

5. An intake system according to claim 4, wherein said discharge spirals (42) of said cyclones (11) are monolithically formed with said dirt collector 16.

5 6. An intake system according to claim 2, wherein said dirt collection chamber (17) is fluidically connected with said peripheral flows (10) that are flowing from said cyclones (11).

10 7. An intake system according to claim 2, wherein at least one of said cyclones (11) has a main body (12) and an immersion tube (14), wherein said immersion tube is formed on an end (28) of said main body (12) that faces away from an intake element (13) and wherein at least one of said core flows 9 flows out of said at least one cyclone (11) via said immersion tube (14).

15 8. An intake system according to claim 7, wherein all of said cyclones (11) are provided with immersion tubes (14), which are monolithically formed with said dirt collector (16).

9. An intake system according to claim 2, wherein said dirt collection chamber (17) extends essentially perpendicular to longitudinal axes (20) of said cyclones (11).

20 10. An intake system according to claim 1, wherein each of said cyclones (11) is provided with a main body (12) on which is disposed an intake element (13).

11. An intake system according to claim 10, wherein said intake elements (13) are embodied as separate components, and are provided with an inlet funnel (58).

25 12. An intake system according to claim 10, wherein said intake elements (13) for all of said cyclones (11) have an identical design.

13. An intake system according to claim 10, wherein said air filter (3) is disposed in an air filter housing (19), wherein said main bodies (12) of said cyclones (11) form a common component with a first housing part (18) of said air filter housing (19), and wherein said first housing part (18) includes said dirt chamber (5) of said air filter (3).

14. An intake system according to claim 2, which includes a fan (22), wherein said suction tube (21) fluidically connects said dirt collection chamber (17) with a bladed, rear face (24) of said fan (22) that faces said motor (8), wherein a cross-section of said suction tube (21) is preferably enlarged in a direction toward said fan (22), and wherein said suction tube opens out at said fan (22), approximately in a region of an axis of rotation (33) thereof, such that in a normal operating position of the implement, said suction tube (21) approximately coincides with a direction (25) of gravitational force.

15. An intake system according to claim 2, wherein in a normal operating position of the implement, said dirt collection chamber (17), when viewed in a direction (25) of gravitational force, is disposed above said air filter (3).

16. An intake system according to claim 2, wherein said dirt collector (16) is disposed on a housing part of an air filter housing (19).

17. An intake system according to claim 1, wherein said dirt chamber (5) of said air filter (3) is closed off relative to the environment via an air filter cover (15) that at least partially spans said cyclones (11).

18. An intake system according to claim 1, wherein said cyclones (11) are tangential cyclones.

19. An intake system according to claim 1, wherein each of said cyclones (11) has a main body (12) having an approximately cylindrical, and in particular slightly conical, configuration, and wherein longitudinal axes (20) of said

cyclones (11) extend parallel to one another and form a common plane.

20. An intake system according to claim 10, wherein relative to a direction (25) of gravitational force, said intake elements (13) draw in combustion air from above said carburetor (7) of said motor (8).